

(12) INTERNATIONAL PUBLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau(43) International Publication Date
5 August 2004 (05.08.2004)

PCT

(10) International Publication Number
WO 2004/065440 A3(51) International Patent Classification⁷: **C08F 251/00**,
261/04, C08L 51/02, A61L 27/16(21) International Application Number:
PCT/JP2004/000086

(22) International Filing Date: 8 January 2004 (08.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-45163 17 January 2003 (17.01.2003) JP
2003-320541 12 September 2003 (12.09.2003) JP
2003-434851 26 December 2003 (26.12.2003) JP

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Seto-shi, Aichi 489-0842 (JP).(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG,KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

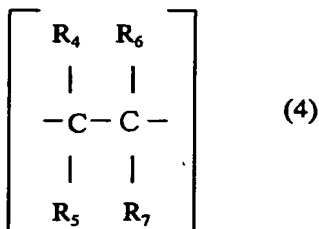
Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*(88) Date of publication of the international search report:
2 December 2004*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: CATIONIC GRAFT-COPOLYMER FOR NON-VIRAL GENE DELIVERY VECTOR

(57) Abstract: A cationic graft-copolymer for a non-viral gene delivery vector comprising a unit derived from a cationic derivative of a water-soluble linear polymers having a hydroxyl groups, namely, a cationic polysaccharide of the following formula (1) [C₆H₇O₂ (OH)_{3-a} (OX)_a]_x H₂O (1) and the cationic derivative of polyvinylalcohol of the following formula (2) or the cationic derivative of the partial hydrolyzed polyvinylalcohol of the following formula (3) [CH₂ CH(OH)_{1-b} (OX)_b]_n (2) [CH₂CH(OH)_{1-b-c} (OX)_b (OAc)_c]_n (3) and a unit derived from a polymerizable olefin compound of the following formula (4) R₄ R₆ | - C - C - (4) | | R₅ R₇ (a, x, b, n, c, Ac, X, R₄, R₅, R₆, and R₇ are defined in claim 1-6); a process for preparing the same and a transfection reagent made therefrom..

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/000086

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08F251/00 C08F261/04 C08L51/02 A61L27/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08F C08L A61L A61K G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 816 540 A (ONISHI YASUHIKO) 28 March 1989 (1989-03-28) * abstract ; claims 1-6 *	1
X	US 4 808 709 A (ONISHI YASUHIKO) 28 February 1989 (1989-02-28) * abstract ; claims 1-18 *	1
X	US 3 989 656 A (KAMIYA SADAYOSHI ET AL) 2 November 1976 (1976-11-02) * abstract ; column 2, line 64-67 ; claims 1-5 *	1
X	US 4 032 488 A (HOKKOKU SHUSABURO ET AL) 28 June 1977 (1977-06-28) * claims 1-8 ; column 8, line 49 *	1
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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Date of the actual completion of the international search

11 May 2004

Date of mailing of the international search report

24.08.2004

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Hammond, A

INTERNATIONAL SEARCH REPORT

Intern. Application No
PCT/JP2004/000086

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 060 566 A1 (LORENCAK PRIMOZ ET AL) 9 May 2000 (2000-05-09) * abstract ; claims 1-10 ; column 8, line 50 - column 9, line 43 * -----	1
A	US 2002/161136 A1 (GEVAERT ET AL) 31 October 2002 (2002-10-31) * abstract ; claims 1-14 * -----	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/000086

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claim: 1

A cationic graft copolymer product of a water-soluble linear backbone polymer having hydroxyl groups comprising a unit derived from a cationic water-soluble linear polysaccharide of the formula (1) as detailed in applicazton claim 1.

2. claim: 2

A general process for preparing a cationic graft copolymer as described in application claim 2.

3. claim: 3

A complex between DNA and a cationic graft copolymer as described in the application claim 3.

4. claim: 4

A further complex between RNA and a cationic graft copolymer as described in application claim 4.

5. claim: 5

A gene dilivery system using a complex between DNA and the cationic graft copolymer as described in application claim 5.

6. claim: 6

A gene delivery system using a complex between RNA and the cationic graft copolymer as described in application claim 6.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP2004/000086

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